2004 GALVESTON BAY INVASIVE SPECIES RISK ASSESSMENT
INVASIVE SPECIES SUMMARY
Created by: Environmental Institute of Houston, University of Houston-Clear Lake
and the Houston Advanced Research Center

Common Name: Australian spotted jellyfish

Latin Name: *Phyllorhiza punctata*

Category: Aquatic Animal

Place of Origin: Australia

Place of Introduction: Mobil Bay, Alabama ("….first sighted in Mobile Bay in May [2000], a long way from their native home in the Pacific. Scientists theorize that they hitched a ride into the Gulf on a ship coming through the Panama Canal and colonized the Caribbean some time ago. This year [2000], apparently for the first time ever, they rode a current into the upper Gulf.") http://nas.er.usgs.gov/coelenterates/phyllorhiza.html (Accessed 20 March 2003).

Date of Introduction: 2000

States Effected:
Gulf of Mexico States http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

Life History:
"The life cycle of jellyfish includes several stages. The most obvious one is the adult medusa stage and it is this stage which was visible in the Gulf during the summer of 2000. The medusae produce larvae that attach to hard substrate and become hydra-like polyps during the winter. In the spring, the polyps release tiny medusa-like ephyrae which grow up into adult medusae" http://www.gomr.mms.gov/homepg/regulate/environ/ongoing_studies/gm/GM-01-07.html (Accessed 20 March 2003).

Growth/Size:
"The bell of this large jellyfish may reach 50 cm in diameter" http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

Feeding Habits/Diet:
"Phyllorhiza has stinging cells or nematocysts in its tentacles, which are used for protection and capturing plankton" http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

"The jellies digest their gut contents every two hours, so right now, they are each eating about 2,400 eggs a day. Graham said their consumption is limited only by the number of eggs and small larvae in the water, and as breeding season peaks this fall, they'll consume even more. Each jellyfish can filter 50 cubic meters of water a day, cleaning it of nearly every living thing smaller than a BB.

…They concentrate on plankton, that pervasive blanket of tiny creatures, both plant and animal, that ultimately fuels the entire Gulf ecosystem. The problem is that the jellyfish are, in a sense, taking this plankton out of the mouths of mature filter-feeding fish and fish larvae, which compete with the jellyfish for this plankton.

"You really have two problems in terms of commercially important fish," said Harriet Perry, director of the fisheries section of the Gulf Coast Research Laboratory in Mississippi. "First, the jellies are ingesting the larvae and eggs of these commercially important species, and then the fish larvae must compete with these incredibly efficient jellies for the same food source" http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

Habitat:
"In Hawaii these jellyfish are found swimming near the surface in the murky waters near estuaries in harbors and embayments. Nothing is known about the habitat of the tiny benthic stages of this species in Hawaii." http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

"Scientists believe that the jellies have moved farther out into the Gulf [of Mexico] with the expanding, food-rich dead zone, where their young are able to use the new nursery habitat provided by the offshore oil rigs" http://nas.er.usgs.gov/coelenterates/phyllorhiza.html (Accessed 20 March 2003).

Attitude (aggressive, etc.):
"… these jellyfish are known to eat planktonic crustaceans and fish eggs and larvae elsewhere. A population explosion of *P. punctata* in the Gulf of Mexico, where it is an alien species, appeared to threaten the local fish populations and other commercially important species such as shrimp, menhaden, anchovies, and crabs. ….it has been reported that this jellyfish appears to be more common in winter months" http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

"That data, obtained during a two-week research cruise in the Gulf, shows that the invaders have a predilection for eating fish eggs and larvae. And it shows that they have situated themselves in extremely high concentrations in the places where they could potentially do the most damage to fish stocks in the northern Gulf. In addition to the sport fish that may be hard hit by the jellies, commercially important species such as shrimp, menhaden, anchovies and crabs spawn outside of the barrier islands. Their eggs and larvae must float through the passes to get to the inshore nursery area that runs from Louisiana to Alabama, where they grow to adult size.

Graham's data indicates that scarcely a single egg or larva can run the intense jellyfish gauntlet set up in the passes. The jellies are so concentrated, it appears a person could use them as stepping stones from one island to another.

"These things are incredibly efficient at turning the water over, cleaning it of everything in it," he said. "We're finding them with 200 fish eggs in their guts."

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"The Australian spotted jellyfish, *Phyllorhiza punctata*, was seen in tremendous concentrations as was another invasive jelly, *Drymonema dalmatina*. Both of these invasive species appear to have come into the Gulf from Caribbean waters"

Physical Description:

"The bell of this large jellyfish may reach 50 cm in diameter. It is typically bluish-brown with many evenly distributed opaque white spots. It has eight thick transparent branching oral arms which terminate with large brown bundles of stinging cells. From each oral arm hangs a longer ribbon-like transparent appendage.
A superficially similar, but smaller species of jellyfish, *Mastigias* sp., is also thought to be an alien"
http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm (Accessed 20 March 2003).

References (includes journals, agency/university reports, and internet links):

1. HBS - http://www2.bishopmuseum.org/HBS/invertguide/species/phyllorhiza_punctata.htm
2. USGS - http://nas.er.usgs.gov/coelenterates/phyllorhiza.html
3. MMS – Minerals Management Service – Gulf of Mexico Region. U.S. Department of Interior. http://www.gomr.mms.gov/homepg/regulate/environ/ongoing_studies/gm/GM-01-07.html
4. SMS - http://www.sms.si.edu/IRLSpec/IRL_news.htm